

## WINDOW BAG AND METHOD FOR MAKING A WINDOW BAG

[0001] This application claims priority from provisional application serial no. 60/420,015, filed October 21, 2002. The disclosure of application serial no. 60/420,015 is hereby incorporated by reference.

## BACKGROUND OF THE INVENTION

[0002] This invention relates generally to bags and packaging for holding materials such as pet food, litter, etc. and more particularly to bags having a see-through window for viewing the contents within the bag.

[0003] One problem with bags for holding materials such as pet food is infestation by bugs, for example, and damage the contents within bag 10. Another problem is product migration of the contents within the bag. Product migration can occur when the contents within a particular bag, such as abrasive pet foot particles, for example, rub against the inner surface of the bag to damage and/or degrade the inner surface to eventually rub or migrate partially or all the way through the bag. It may also be desirable to show purchasers the product container within the bag prior to making a purchase.

[0004] The foregoing illustrates limitations known to exist in present window bags. Thus, it is apparent that it would be advantageous to provide an alternative directed to overcoming one or more of the limitations set forth above. Accordingly, a suitable alternative is provided including features more fully disclosed hereinafter.

## SUMMARY OF THE INVENTION

[0005] In one aspect of the present invention, this is accomplished by providing a bag comprising: a multi-ply blank comprising: an outer layer having at least one ply, the outer layer having at least one window cut therethrough; and a polymeric inner layer adhesively adhered to the outer layer.

[0006] In another aspect of the present invention, this is accomplished by providing a method of forming a bag comprising the steps of: providing a multi-ply blank comprising: an

outer layer having at least one ply, the outer layer having at least one window cut therethrough; and a polymeric inner layer adhesively adhered to the outer layer, the multi-ply blank being formed by: cutting the at least one window in the outer layer; applying adhesive to one surface of the outer layer; adhering the outer layer to the inner layer; applying adhesive to a portion of one surface of the outer layer; applying adhesive to a portion of one surface of the inner layer; then forming the multi-ply blank into a tube, adhering the portion of one surface of the inner layer to another surface of the inner layer, adhering the portion of one surface of the outer layer to another surface of the outer layer; and forming the tubular multi-ply blank into the shape of a bag having a front, a back, two sides and a closed bottom.

[0007] The foregoing and other aspects will become apparent from the following detailed description of the invention when considered in conjunction with the accompanying drawing figures.

#### BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0008] FIG. 1 is a perspective view of a bag comprising three layers arranged to form a see-through, laminated window in the bag;

FIG. 2 is an exploded, perspective view of a portion of the three layers of the bag showing an outer paper layer, a middle paper layer, and an inner laminate transparent layer;

FIG. 3 is a sectional view taken along line 3-3 of Fig. 1 showing the three layers of the bag and showing the inner laminate transparent layer forming the entire inner surface of the bag so that the bag is fully lined;

FIG. 4 is a plan view of a multi-ply blank for forming the bag shown in FIG. 1;

FIG. 5 is a top view of the multi-ply blank shown in FIG. 4; and

FIG. 6 is a schematic view of a portion of the multi-ply blank shown in FIG. 4 formed into a tubular shape.

#### DETAILED DESCRIPTION

[0009] A multi-purpose bag 10 having multiple layers is shown in Fig. 1. Bag 10 includes a window 12, an outer surface 14, and an inner surface 16. As shown in Figs. 1-3, illus-

trative bag 10 includes three layers: an outer layer 18, a middle layer 20, and an inner layer 22. It is within the scope of this disclosure, however, for bag 10 to include another number of layers, for example.

[0010] Illustrative outer layer 18 and middle layer 20 are each made of paper. However, it is within the scope of this disclosure for outer layer 18 and/or middle layer 20 to be made of other materials suitable for forming a bag such as plastic, for example. Outer layer 18 includes a first surface, or outer surface 14 of bag 10, and a second surface 24. As shown in Fig. 2, an adhesive or glue 26 between second surface 24 of outer layer 18 and a first surface 28 of middle layer 20 is provided so that outer and middle layers 18, 20 may be coupled together, as discussed in greater detail below. Further, adhesive or glue 26 is provided between a second surface 30 of middle layer 20 and inner layer 22 to adhere middle and inner layers 20, 22 to each other. Illustratively, glue 26 may be latex based such as WB8057 LATEX FILM GRIP made by H. B. Fuller Company of St. Paul, MN, for example.

[0011] Illustrative inner layer 22 is made of a see-through (e.g. transparent or translucent) plastic film such as a biaxial oriented clear film with a nylon core or a plastic sheet of polypropylene such as 60 gauge Emblem Nylon made by PennPac Packaging & Specialty Film Group of Manheim, PA, for example. Inner layer 22 has a first surface 31 coupled to middle layer 20 and a second surface which forms inner surface 16 of bag 10. Inner layer 22 acts as a liner for bag 10 and lines the entire second surface 30 of middle layer 18 to form the entire inner surface 16 of bag 10 so that bag 10 is fully lined. Fully lined bag 10 may reduce the amount of infestation of bugs, for example, through bag 10 to damage the contents within bag 10 and may also reduce the amount of product migration of the contents within bag 10. Product migration can occur when the contents within a particular bag, such as abrasive pet foot particles, for example, rub against the inner surface of the bag to damage and/or degrade the inner surface to eventually rub or migrate partially or all the way through the bag. Therefore, inner layer or liner 22 (which lines all of bag 10 to define all of inner surface 16 of bag 10) helps to prevent degradation of bag 10 by the product and helps to prevent product degradation of the contents within the bag from an infestation by bugs and/or other critters.

[0012] As mentioned above, bag 10 is formed to include window 12, shown in Fig. 1. Illustratively, outer layer 18 and middle layer 20 each include an opening defined by inner edges 30, 32, respectively, as shown in Fig. 2. Inner edges 30 of outer layer 18 and the inner edges 32

of middle layer 20 are aligned to create a single opening 34 of window 12. Inner liner 22 does not include an opening and thus covers opening 34 to protect the inner contents of bag 10 while allowing consumers to view the contents of bag 10.

[0013] Bag 10 is assembled by forming a multi-ply blank 50. First, outer and middle paper layers 18, 20 are adhered together. A first laminator (not shown) is used to laminate first surface 28 of middle layer 20 with the adhesive 26 to couple outer and middle layers 18, 20 to each other. The laminator may also apply adhesive 26 to second surface 24 of outer layer 18 as well. Next, the outer and middle paper layers 18, 20 (adhered to each other) travel through a window cutter (not shown) which cuts opening 34 through both layers 18, 20 to form edges 30, 32 of respective layers 18, 20. It is also within the scope of this disclosure for a window cutter to cut openings in layers 18, 20 prior to coupling layers 18, 20 to each other with adhesive 26.

[0014] Once opening 34 is cut through outer and middle layers 18, 20, a skip laminator (not shown) adheres inner liner 22 to second surface 30 of middle layer 20. A skip laminator is a solid plate having a void or cut-out formed therein so that the adhesive 26 applied to liner 22 by the skip laminator is not applied to the area of liner 22 which covers opening 34 to form window 12. This prevents the area of liner 22 forming window 12 from being tacky. Once liner 22 has been adhered to middle layer 20 of the middle and outer layer combination, the three plies are folded to form bag 10.

[0015] Preferably, outer layer 18 is offset from middle layer 20 as shown in FIGS. 4 and 5. Also preferably, inner transparent layer 22 is further offset from middle layer 20. Once multi-ply blank 50 is formed, the multi-ply blank is formed into a tube with one edge of each layer 18, 20, 22 overlapping and being adhered to the other edge of itself, as shown in FIG. 6. The tubular multi-ply blank 50 is then folded into bag 10 with a front, a back, two sides and a closed bottom as shown in FIG. 1. Because multi-ply blank 50 is folded with inner layer 22 on the inside of bag 10, inner layer 22 will completely line the interior of the bag. Preferably, the various flaps and folds of multi-ply blank 50 that form the closed bottom of bag 10 are adhered to one another to seal the bottom of the bag. The seams where each layer is adhered to itself are typically positioned in the back or one of the sides of bag 10.